

AMENDMENTS TO THE SPECIFICATION

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Please replace the paragraph on page 13, lines 5-10, with the following amended paragraph:

A1  
Accordingly, the device is initialized in the states 504[-], 506, 508 and calibrated to a particular user. The manual verification of the identity of the user may be performed in the state 504 at a place of purchase of the device 100 or other centralized location. Because this manual verification need be performed infrequently, increased caution may be used to ensure that the identity of the user is correctly verified before the image and voice samples are taken in the states 504[-], 506, 508.

✓  
Please replace the paragraph on page 13, line 27, to page 14, line 2, with the following amended paragraph:

A2  
Note, however, that the baseline profile need not be permanently frozen. Thus, in one embodiment, the baseline profile may be continuously updated by the device 100 automatically incorporating new images and other sampled data into the baseline profile so long as no significant differences are encountered which would indicate a change in the identity of the person wearing the device. For example, when new images result in confirmation of the wearer's identity those new images may be incorporated into the baseline profile. As such, the baseline profile may tend to evolve over time to help maintain its accuracy. Alternately, the calibration steps 504[-], 506, 508 may be repeated on a periodic basis, for example once per year, to maintain accuracy of the baseline profile.

✓  
Please replace the paragraph on page 14, lines 2-10, with the following amended paragraph:

A3  
Once the baseline profile is obtained in the states 504[-], 506, 508, program flow moves to a state 510. In the state 510 a program loop may begin in which the device 100 repeatedly attempts to authenticate the wearer's identity. Thus, in the state 510, the device 100 may obtain additional biometric and/or environmental samples of

the type obtained in the state 506 to form the baseline sample. For example, several new images of the user's iris or face may be obtained each day at times when the user views the display 222, such as to read the time of day or date. Alternately, the device 100 may prompt the user to take an action that allows the device to collect certain information (e.g., the device 100 may provide an audible prompt for the user to look at the display 222 and press one of the buttons 220 to capture an image of the user). This prompting may occur at predetermined times, random times and/or in response to the user attempting to conduct a secure transaction or attempting to gain access to a secure area.

Please replace the abstract on page 22, lines 2-21, with the following amended paragraph:

A face and environment sensing portable device. In a preferred embodiment, the device is wrist-worn by a person, similarly to a wristwatch. The portable device includes one or more sensing elements, such as an image-capturing device, a microphone or other environmental sensor, and a processing system for processing data obtained from the sensing element(s). In addition, the portable device may include input/output elements for interfacing the portable device with a person and with external systems. The portable device reliably authenticates the identity of the person based on information obtained from the sensing element(s) and may also determine whether the user has been in continuous possession of the device. By using multi-modal identification, the invention may provide increased confidence, while maintaining a low cost. This verification may then be used, for example, to enable the person to conduct secure transactions. ~~The verification may also be used to tailor or customize applications and services to the user's personal preferences. The invention avoids drawbacks of conventional authentication techniques, such as inaccuracies in manual photographic identification techniques and the proliferation of excessive numbers of passwords. In another aspect, the invention overcomes drawbacks in the abilities of low cost image sensors by applying superresolution techniques to combine multiple lower quality images into an image with improved quality. Super resolution processing can be performed in the portable device itself or by an external infrastructure.~~